UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,448	06/02/2005	Rob A. Beuker	348162-982480	2666

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EXAMINER
MA, CALVIN

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/537,448	BEUKER ET AL.
	Examiner	Art Unit	
	CALVIN MA	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *21 March 2011*.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1 and 3-16* is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1 and 3-16* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☐ All   b)☐ Some * c)☐ None of:
         1.☐ Certified copies of the priority documents have been received.
         2.☐ Certified copies of the priority documents have been received in Application No. _____.
         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date *3/21/2011*.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 3-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gindele et al. (USP 6549678) in view of Bhaskar (USP 6393148).

As to claim 1, Gindele discloses a method for improving the perceived resolution

of a color matrix display (i.e. the computer display 30 shown in figure 1) with at least

one pixel, comprising the steps of

subdividing an incident color channel signal to said pixel into a first and second

signal component (i.e. the pedestial splitter 30a takes on the red channel and split it into

Rtxt and Rped signal) (see Fig. 2, Col. 3, Lines 45-67),

applying a gain factor to one of said signal components, (i.e. the slope calculator

37 applies the gains which is a scalar constant based on the color's texture

displacement in the overall image which is a function of there overall brightness

contribution since the color placement of the color channel are factored into the

calculated mid-tone gain (see Fig. 2, Col. 5, Lines 5-55), and

subsequently recombining said first and second signal components into an

exiting modified color channel signal (39) (i.e. the texture signal and the pedestal signal

are recombined at the adder which exit the system as transformed color image which

could be display on the computer screen) (see Fig. 1, 2, Col. 3, Lines 23-44).

However Gindele does not explicitly teach the first signal component being a low

pass component and second signal component being a high pass component, and the

gain factor being based upon the contribution of the incident color signal to total

luminance of the display. Bhaskar the first signal component being a low pass

component (i.e. the signal hist_red which is based on the color frequency of red

component was is the lower portion of the visible spectrum in electromagnetic wave

frequency) and second signal component being a high pass component teaches (i.e.

the signal hist_blue where the signal is based on high frequency band color information

of the electromagnetic waveform), the gain factor being based upon the incident color

channel signal's contribution to total luminance of the display (i.e. Bhaskar teaches the

system of display correction whereby the channel histograms are compared where the

gain factor is used to create modification based on the stretch factor which is based on

the color channel signals contribution to the overall luminance of the system and

therefore improves contrast level) (see Bhaskar, Fig. 4A, 4B, Col. 4, Lines 25-54).

Therefore it would have been obvious for one of ordinary skill in the art at the

time the invention was made to have utilized the color specific luminance based gain

factor filtering image processing design of Bhaskar in the overall display system of

Gindele in order to allow the user better display result by enhancing the display contrast

(see Bhaskar, Col. 2, Lines 1-21).

As to claim 7, see claim 1 above, claim 7 differs from claim 1 only in that it is a

device claim rather than a method claim and is analyzed to have the same limiting

scope and is therefore rejected for the same reason (i.e. the computer display 30 is a

color matrix display device) (see Gindele, Fig. 1).

As to claim 12, see claims 1 and 7 above, claim 12 is analyzed to differ from

claim 7 only in the additional limitation of "a plurality of pixels controlled by applied color

channel signals" which is taught by Gindele in the form of the computer monitor 30

which has plurality of displaying pixels which are fed the color signal from the display

processing unit of the computer 20 after being process by the image processing system.

In this way claim 12 still read on the prior art Gindele.

As to claim 3, Gindele teaches wherein applying a gain factor to one of said

signal components includes applying the gain factor only to said high-pass component

(i.e. the mid-tone gain factor scalar component is only applied to the texture signal

which is the high-pass component) (see Fig. 3, Col. 4, Lines 10-55, Col. 6, Lines 1-43).

As to claim 4, Gindele teaches the method according to claim 2, wherein said

low-pass component is realized by means of a low-pass filter, and said high-pass

component is realized by means of a high-pass filter, said low-pass and high-pass filters

being complementary (i.e. since the texture signal is formed which a high-pass filter and

the pedestal signal is formed by having the original signal subtracting the texture signal,

the pedestal signal has the equivalent low pass filter applied on it since the subtraction

of the high-pass signal naturally result in the low pass signal, and in this when the to

filter are complementary) (see Fig. 2, 3, Col. 4, Lines 10-55, Col. 6, Lines 1-43).

As to claim 5, Gindele teaches the method according to claim 1, further

comprising the step of:

determining the gain factor for the one of said signal components (i.e. the red

color channel applied to 30a) based upon the incident color channel signal's contribution

to total luminance of the display, the gain factor being inversely proportional to the

contribution of the color channel to the total luminance of the color matrix display (i.e.

the mid-tone modifier is inverse proportional to the overall brightness since the brighter

the color components is on color space the Euclidian distance is in inverse relationship

with its mid-tone) (see Col. 5, Lines 20-35).

As to claim 6, Gindele teaches the method according to claim 1, further

comprising the step of:

transmitting said exiting, modified color channel signal to a delay and up or

downsampling block in order to provide the modified color channel signal with a suitable

delay and scaling (i.e. since Gindele teaches the computer system 20 being able to

display the image that is corrected on the display 30 the computer display control

system must create the needed delay and scaling to fit the image data into the video

buffer and thereby display it correctly on the screen 30) (see Fig. 1, Col. 3, Lines 5-35).

As to claim 8, Gindele teaches the color matrix display device as in claim 7, wherein the control unit determines the gain factor based upon contribution of the incident color channel signal to total luminance of the display (i.e. the slope calculator 37 applies the gains which is a scalar constant based on the color's texture displacement in the overall image which is a function of there overall brightness contribution since the color placement of the color channel are factored into the calculated mid-tone gain (see Fig. 2, Col. 5, Lines 5-55).

As to claim 9, Gindele teaches the method according to claim 1, wherein the step of subdividing includes subdividing each of the separate color channel signals for an image into a first and second signal component (i.e. as seen in figure 2 all three of the red, green, and blue channels are subdivided).

As to claim 10, Gindele teaches the method according to claim 1,

wherein the step of subdividing includes subdividing each of the separate color channel signals for an image into a first and second signal component (i.e. as seen in figure 2 all three of the red, green, and blue channels are subdivided via 30a, 30b, and 30c), and

wherein applying a gain factor includes applying a separate gain factor to one of the signal components of each separate color channel signal (i.e. the signals RGB are separately processed circuitries 33 and 37, where the mid-tone gain m is applied to

each of the separate channel individually) (see Fig. 2, Col. 5, Lines 10-40) that is

inversely proportional to the contribution of said separate color channel signal to the

total luminance of the color matrix display (i.e. the mid-tone modifier is inverse

proportional to the overall brightness since the brighter the color components is on color

space the Euclidian distance is in inverse relationship with its mid-tone) (see Col. 5,

Lines 20-35).

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As to claim 11, Gindele teaches the method according to claim 1, wherein the

step of subdividing include subdividing a number 3 (i.e. N=3 for the three channels

RGB) of different color channel signal, and

the step of applying a gain factor includes applying a separate gain factor, to one

of the signal components for each color channel signal, that is about equal to the value

of 1/3 multiplied by the reciprocal contribution of the color channel signal to the total

luminance of the color matrix display (i.e. the mid-tone modifier for each of the channel

R, G, B are inverse proportional to the overall brightness since the brighter the color

components is on color space the Euclidian distance is in inverse relationship with its

mid-tone and since the mid-tone factor is a part of the three color combined brightness

total, the gain is about 1/3 of the total value of the entire image signal) (see Col. 5, Lines

20-35).

3.   Claims 13-16 are rejected 35 U.S.C. 103(a) as being obvious over Gindele et al

in view of Bhaskar as applied to claims 1 and 12, and further in view of Hunter et al. (US

Patent: 7,071,978).

As to claims 13 and 15, Gindele teaches the method and device of claim 1 and

12, but does not explicitly teaches applying a gain factor includes applying a gain factor

that removes a visible aliasing term from the incident color channel signal, however

Gindele does teach the possibility of texture amplifier being modified in manner by those

skilled in the art may desire.

Hunter teaches wherein applying a gain factor includes applying a gain factor

that removes a visible aliasing term from the incident color channel signal (i.e. Hunter

teaches the usage of the gain application method will remove color aliasing in the

image) (see Hunter Col. 3, Lines 33-40).

Therefore, it would have been obvious for one of ordinary skill in the art at the

time the invention was made to have used the aliasing removal technique of Hunter in

addition to the texture modifying circuitry of Gindele in order to further enhance the

image processing capability of Gindele with anti-aliasing capabilities (see Hunter Col. 3,

Lines 30-45).

As to claims 14 and 16, Hunter teaches wherein applying a gain factor includes

applying a gain factor that sets constants of a visible aliasing term for the incident color

channel signal to zero to remove a visible aliasing term from the incident color channel

signal (i.e. Hunter teaches the usage of the gain application method will remove color

aliasing in the image) (see Hunter, Col. 3, Lines 33-40).

Response to Arguments

4.   Applicant's arguments with respect to claims 1, 3-16 have been considered but

are moot in view of the new ground(s) of rejection.

Inquiry

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to CALVIN C. MA whose telephone number is (571)270-

1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Quan-Zhen Wang can be reached on 571-272-3114. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Calvin Ma
June 15, 2011

/Quan-Zhen Wang/
Supervisory Patent Examiner, Art Unit 2629